

SEQUENCE LISTING

<110> E. I. du Pont de Nemours and Company

<120> Plant Histidine Biosynthetic Enzymes

<130> BB1255

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<141>

<150> 60/105,409

<151> 1998-10-23

<160> 22

<170> Microsoft Office 97

<210> 1

<211> 433

<212> DNA

<213> Zea mays

<220>

<221> unsure

<222> (432)

<400> 1

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<212> PRT

<213> Zea mays

<400> 2

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Lys Gln Arg Leu Val Leu Asp Leu Lys Leu Ser Lys Lys Ala Arg Tyr
      35              40              45

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Thr Ile Val Thr Asp Arg Trp Gln Lys Phe Ser Asp Val Phe Val Asp
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Glu Pro Ala Leu Glu Tyr Leu Ala Ala Phe
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taaagaaaagc aggcaaaagt cgggtagatg taacaattgg gagtgtctta gatataattg 180
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<212> PRT
<213> Zea mays

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Glu Arg Ile Lys Lys Ala Gly Lys Ser Arg Val Asp Val Thr Ile Gly
35 40 45
Ser Ala Leu Asp Ile Phe Gly Gly Asp Leu Pro Tyr Lys Asp Val Val
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Leu Trp His Arg Lys Gln Ser Met Val Gly Gln Val
 65 70 75

<210> 5
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 <212> DNA
 <213> Zea mays

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 taagcagatt gttggttcta ctcttcggga ttcattccaat gatggcatgg aacttgtgac 420
 aaactttgaa tcagacaaat ctctgcaga atttgcaaaa tcatat 466

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 <213> Zea mays

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 20 25 30

Val Ser Phe Arg Pro Cys Ile Asp Ile His Lys Gly Lys Val Lys Gln
 35 40 45

Ile Val Gly Ser Thr Leu Arg Asp Ser Ser Asn Asp Gly Met Glu Leu
 50 55 60

Val Thr Asn Phe Glu Ser Asp Lys Ser Pro Ala Glu Phe Ala Lys Ser
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Tyr

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 acttgtggaa ctattggggc actattcacc aatcccagtc acttatgctg ggggtgtgtc 240
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 tgggagtgct ctagatataa ttggangaga ttgccttaac aagatgttgt ccttggcacc 360
 agggagccaa gtaatggttg ggncaagtgt gaagaacncc agggaattaa tccagtanta 420
 cccagttcca tttgatnaaa ccnctggac caaaagataa tttccccgaa ccaatttttg 480
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 <212> PRT
 <213> Zea mays

<400> 8
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Thr Asp Arg Trp Gln Lys Phe Ser Asp Val Phe Val Asp Glu Pro Thr
20 25 30

Leu Glu Tyr Leu Ala Ala Phe Ala Asp Glu Phe Leu Val His Gly Val
35 40 45

Asp Val Glu Gly Lys Arg Leu Gly Ile Asp Glu Glu Leu Val Glu Leu
50 55 60

Leu Gly His Tyr Ser Pro Ile Pro Val Thr Tyr Ala Gly Gly Val Ser
65 70 75 80

Thr Met Asp Asp Leu Glu Arg Ile Lys Lys Ala Gly Lys Ser Arg Val
85 90 95

Asp Val Thr Ile Gly Ser Ala Leu Asp Ile Ile Gly
100 105

<210> 9

<211> 397

<212> DNA

<213> Zea mays

<400> 9

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aaagaagatg aacttcttgg aggacatggt ataatgcttg gctcagatcc tgcaagccag 180
gctgctgcac tcgaggcact acatgcatat cctggtggct tgcaagttgg aggtggaata 240
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<210> 10

<211> 130

<212> PRT

<213> Zea mays

<400> 10

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Ser Asn Asp Gly Met Glu Leu Val Thr Asn Phe Glu Ser Asp Lys Ser
20 25 30

Pro Ala Glu Phe Ala Lys Ser Tyr Lys Glu Asp Glu Leu Leu Gly Gly
35 40 45

His Val Ile Met Leu Gly Ser Asp Pro Ala Ser Gln Ala Ala Ala Leu
50 55 60

Glu Ala Leu His Ala Tyr Pro Gly Gly Leu Gln Val Gly Gly Gly Ile
65 70 75 80

Asn Leu Gln Asn Ala Met Ser Tyr Leu Asn Glu Gly Ala Ser His Val
85 90 95

Ile Val Thr Ser Tyr Val Phe Ser Asp Gly Lys Met Asn Ile Glu Arg
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Leu Thr Lys Leu Val Glu Leu Val Gly Lys Gln Ser Leu Cys Trp Thr
 115 120 125

Leu Ala
 130

<210> 11
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 cttaatgaag gggccagaca tgtgatagtg acctcttatg tggttaggga tggcaagatg 360
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 <213> Zea mays

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 Leu Val Thr Asn Phe Glu Ser Asp Lys Ser Pro Ala Glu Phe Ala Lys
 35 40 45
 Phe Tyr Lys Ala Asp Glu Leu Leu Gly Gly His Val Ile Met Leu Gly
 50 55 60
 Ala Asn Pro Ser Ser Gln Ala Ala Ala Leu Glu Ala Leu Arg Ala Tyr
 65 70 75 80
 Pro Gly Gly Leu Gln Val Gly Gly Gly Ile Asn Leu Glu Asn Ala Met
 85 90 95
 Xaa Tyr Leu Asn Glu Gly Ala Arg His Val Ile Val Thr Ser Tyr Val
 100 105 110
 Val Arg Asp Gly Lys Met Asn Thr Glu Arg Xaa Xaa Lys Leu Xaa Glu
 115 120 125
 Leu Xaa Gly Lys Gln Arg Leu
 130 135

<210> 13
 <211> 535

<212> DNA
<213> Zea mays

<220>
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gtgtcaacaa tggatgacct anagaggata aagaagcang caaaagtcga gtanatgtaa 480
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<213> Zea mays

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<222> (174)

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Tyr Lys Glu Asp Glu Leu Leu Gly Gly His Val Ile Met Leu Gly Ser
20 25 30

Asp Pro Ala Ser Gln Ala Ala Ala Leu Glu Ala Leu His Ala Tyr Pro
35 40 45

Gly Gly Leu Gln Val Gly Gly Gly Ile Asn Leu Gln Asn Ala Met Ser
50 55 60

Tyr Leu Ser Cys Arg Lys Lys Asp Gly Arg Tyr Thr Ile Val Thr Asp
65 70 75 80

Arg Trp Gln Lys Phe Ser Asp Val Phe Val Asp Glu Pro Ala Leu Gly
85 90 95

Tyr Leu Ala Ala Phe Ala Asp Glu Phe Leu Val His Gly Val Asp Val
100 105 110

Glu Gly Lys Arg Leu Gly Ile Asp Glu Glu Leu Val Glu Leu Leu Gly
115 120 125

His His Ser Pro Ile Pro Val Thr Tyr Ala Gly Gly Val Ser Thr Met
130 135 140

Asp Asp Leu Xaa Arg Ile Lys Xaa Ala Xaa Lys Ser Arg Val Xaa Val
145 150 155 160

Thr Val Gly Ser Ala Leu Xaa Ile Phe Gly Gly Glu Leu Xaa Tyr Lys
165 170 175

Glu

<210> 15

<211> 854

<212> DNA

<213> *Oryza sativa*

<400> 15

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acaaggaaca aaatatggtt agccaaccat gatatatcag aggtataatg cttaacctgt 180
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 aaaaaaaaaa aaaa 854

<210> 16
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 <212> PRT
 <213> Oryza sativa

<400> 16
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 Asp Val Thr Val Gly Ser Ala Leu Asp Ile Phe Gly Gly Asp Leu Pro
 20 25 30
 Tyr Lys Asp Val Val Leu Trp His Lys Glu Gln Asn Met Val Ser Gln
 35 40 45
 Pro

<210> 17
 <211> 487
 <212> DNA
 <213> Glycine max

<220>
 <221> unsure
 <222> (473)

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<210> 18
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 <212> PRT
 <213> Glycine max

<220>
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 <222> (47)

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<221> UNSURE

<222> (59)

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<221> UNSURE

<222> (97)..(98)

<400> 18

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Val Gln Cys Ala Val Gln Phe Arg Pro Cys Ile Asp Ile His Lys Gly
 20 25 30

Lys Val Lys Gln Ile Val Gly Ser Thr Leu Gln Asp Leu Lys Xaa Asp
 35 40 45

Gly Ser Asp Pro Val Thr Asn Phe Glu Ser Xaa Lys Ser Ala Ala Glu
 50 55 60

Tyr Ala Ala Leu Tyr Lys Gln Asp Gly Leu Thr Gly Gly His Val Ile
 65 70 75 80

Met Leu Gly Ala Asp Pro Leu Ser Lys Ala Ser Ala Leu Glu Ser Ile
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Xaa Xaa Tyr Pro Gly Gly Phe Gly Lys Ser Gly Gly
 100 105

<210> 19

<211> 981

<212> DNA

<213> Glycine max

<400> 19

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<210> 20

<211> 280

<212> PRT

<213> Glycine max

<220>

<221> UNSURE

<222> (120)

<400> 20

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Phe Leu Ile Met Thr Lys Phe Arg Pro Cys Ile Asp Leu His Ser Gly
 20 25 30

Gln Val Lys Gln Ile Val Gly Gly Thr Leu Thr Thr Ala Ser Ser Asp
 35 40 45

Leu Lys Thr Asn Tyr Val Ser Lys Leu Pro Ala Gly His Phe Ala Lys
 50 55 60

Leu Tyr Lys Glu Asn Gly Leu Thr Gly Ala His Val Ile Met Leu Gly
 65 70 75 80

Pro Gly Asn Glu Glu Ala Ala Lys Glu Ala Val Gly Glu Trp Lys Asn
 85 90 95

Gly Leu Gln Val Gly Gly Gly Ile Thr Asn Glu Asn Ala Lys Gln Trp
 100 105 110

Ile Asp Trp Gly Ala Glu Arg Xaa Val Ile Ile Thr Ser Phe Leu Phe
 115 120 125

Pro Asn Gly Lys Phe Ser Gln Glu Arg Leu Asp Ser Val Leu Glu Ala
 130 135 140

Leu Gly Gly Asp Lys Glu Lys Leu Val Ile Asp Leu Ser Cys Arg Arg
 145 150 155 160

Arg Asp Asp Thr Trp Phe Val Ala Met Asn Lys Trp Gln Thr Ile Thr
 165 170 175

Asp Met Glu Val Asn Ala Ala Ser Ile Lys Ser Leu Glu Pro Tyr Cys
 180 185 190

Ser Glu Phe Leu Ile His Ala Ala Asp Asn Glu Gly Leu Gln Lys Gly
 195 200 205

Ile Asp Glu Gln Leu Val Glu Lys Leu Ala Gln Trp Cys Ser Ile Pro
 210 215 220

Val Thr Tyr Ala Gly Gly Gly Arg Asn Leu Gln Asp Leu Asp Tyr Val
 225 230 235 240

Lys Lys Leu Ser Gly Gly Lys Val Asp Leu Thr Ile Gly Ser Ala Leu
 245 250 255

Asp Val Phe Gly Gly Ser Gly Val Thr Phe Asp Glu Cys Val Gln Trp
 260 265 270

Asn Gln Arg Gln Val Ala Ser Ser
 275 280

<210> 21
 <211> 1210
 <212> DNA
 <213> Triticum aestivum

<400> 21
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 tggacatgta ataatgcttg gcggagaccc tgcaagccgt tctgctgccc tggaagcact 420
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 aatgaacatt gaaaggctga cgcaacttgt cgagcttggt gggaaagaaa ggcttatttt 600
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 aaaaaaaaaa 1210

<210> 22
 <211> 327
 <212> PRT
 <213> Triticum aestivum

<400> 22
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 Ser Asn Phe Pro Met Ala Ser Arg Cys Ala Ala Arg Leu Pro His Pro
 20 25 30
 Pro Cys Ala Ala Pro His His Gly Trp Ala Ser Ser Arg Val Ser Ala
 35 40 45
 Arg Pro Ala Gln Ser Gly Ala Ser Arg Gly Arg Ala Val Val Cys Ala
 50 55 60
 Val Ser Phe Arg Pro Cys Ile Asp Ile His Lys Gly Lys Val Lys Gln
 65 70 75 80
 Ile Val Gly Ser Thr Leu Arg Asp Ala Ser Asp Asp Gly Thr Ala Leu
 85 90 95
 Val Thr Asn Phe Glu Ser Asp Lys Ser Pro Ala Glu Phe Ala Asn Ile
 100 105 110
 Tyr Lys Glu Asp Gly Leu Val Gly Gly His Val Ile Met Leu Gly Gly
 115 120 125
 Asp Pro Ala Ser Arg Ser Ala Ala Leu Glu Ala Leu His Ala Tyr Pro
 130 135 140

Gly Gly Leu Gln Val Gly Gly Gly Ile Asn Leu Glu Asn Ala Met Ser
 145 150 155 160
 Tyr Leu Asn Glu Gly Ala Ser His Val Ile Val Thr Ser Tyr Val Phe
 165 170 175
 Ser Asp Gly Lys Met Asn Ile Glu Arg Leu Thr Gln Leu Val Glu Leu
 180 185 190
 Val Gly Lys Glu Arg Leu Ile Leu Asp Leu Ser Cys Arg Lys Lys Asp
 195 200 205
 Gly Arg Tyr Ala Ile Val Thr Asp Arg Trp Gln Lys Phe Ser Asp Val
 210 215 220
 Phe Val Asp Gly Pro Thr Leu Glu Arg Leu Ala Ala Tyr Ala Asp Glu
 225 230 235 240
 Phe Leu Val His Gly Val Asp Val Glu Gly Lys Arg Leu Gly Ile Asp
 245 250 255
 Glu Glu Leu Val Glu Leu Leu Gly Ser His Ser Pro Ile Pro Thr Thr
 260 265 270
 Tyr Ala Gly Gly Val Ser Thr Met Asp Asp Leu Glu Arg Ile Lys Lys
 275 280 285
 Ala Gly Lys Ser Arg Val Asp Val Thr Val Gly Ser Ala Leu Asp Ile
 290 295 300
 Phe Gly Gly Asp Leu Pro Tyr Asp Asp Val Val Arg Trp His Lys Glu
 305 310 315 320
 Gln Asn Leu Val Ser Lys Arg
 325